REMEDIATION PLAN

TANK 396 RELEASE
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1.0 INTRODUCTION

On January 9, 2014, a blend of approximately 88.5% crude 4-methylcyclohexanemethanol (MCHM), 7.3% PPH (a hydrophobic glycol ether), and 4.2% water by weight was released from Tank No. 396 at the Freedom Industries (Freedom) facility in Charleston, West Virginia (the Facility) onto the Facility and into the Elk River. Freedom is proceeding with plans to investigate and remediate impacted soils and groundwater at the Facility in accordance with Order No. 8028, as amended, issued by the West Virginia Department of Environmental Protection (WVDEP), and to dismantle, remove, and properly manage the disposition of all above ground tanks, associated piping, machinery, and appurtenances associated with the bulk storage operations at the Facility in accordance with Consent Order No. 8034 between Freedom and DEP.

To date, initial response measures, water quality sampling, and interim remedial measures have been conducted onsite. In order to proceed with remediation and decommissioning activities, Freedom will start by removing and dismantling Tanks 201, 202, 203, 204, 205, 206, 393, 394, 395, 396, and 397 in accordance with the recently approved March 7, 2014 Tank Decommissioning Plan. The Remediation Plan (Plan) contained herein provides a summary of the water quality sampling and interim remedial measures implemented to-date and further describes the general sequence of activities, including site characterization and remediation, to be implemented upon removal of the tanks.

This document has been prepared to provide a description of activities completed to-date (water quality sampling and interim remedial measures) and to lay out the approach for characterizing the site's subsurface and extent of contamination from the January 9th release. Note, however, that the remedial options presented herein are preliminary and "presumptive" in nature and subject to change based on information obtained during completion of site characterization efforts, which will be initiated as soon as the tanks are removed from the release area. In addition, the ultimate disposition of wastewater generated onsite is likely to impact the final remedial option selected. As WVDEP is aware, efforts to identify treatment and/or disposal options for wastewater generated onsite have been significant and ongoing while progress with securing such an option has been limited. Nevertheless, the ultimate objective of designing and implementing a remedy that is protective of human health and the environment is and will remain the top priority.

The attached Figure 1 identifies the general facility layout; the location of various water quality sampling points including wells, seeps, and the culvert inlet and outlet; and the location of the tanks, including Tank 396. The sample locations have provided information relative to surface water and groundwater quality and indicate that interim remedial measures completed to-date have substantially prevented the further migration of product to the Elk River. Figure 2 illustrates the approximate subsurface configuration in the vicinity of the cobble fill in cross-section view. Finally, Figure 3 illustrates the cross-section detail view of the lined Collection Trench installed through a zone of cobble fill that captures surface water and shallow groundwater flow from the Site before it is able to reach the Elk River.

The following Section 2.0 includes a summary and preliminary interpretation of the laboratory analytical results for samples collected by CEC at locations identified on Figure 1. Section 3.0 includes a description of interim remedial measures completed to-date. Section 4.0 provides a description of the conceptual site model as it is understood today and a description of the field investigation methods and approach to complete characterization of the site as needed for the final remedial design. Finally, a summary of remedial concepts that may be implemented at the Site based on the current understanding of the conceptual site model is discussed in Section 5.0.

2.0 WATER QUALITY SAMPLING RESULTS

2.1 SURFACE WATER

As proposed in the January 26, 2014 Water Quality Sampling and Interim Remedial Measures Plan (as amended and supplemented), samples were collected from both the upstream (CU and "Culvert Inside Wall") and downstream (CD) ends of the culvert pipe identified on Figure 1. The upstream location was sampled in order to determine whether water entering the culvert pipe and pipe bedding outside of and upgradient of the secondary containment area is unimpacted and can be diverted around the remediation area. A second sample was collected at the culvert discharge point along the slope facing the Elk River for comparison with the inlet sample. As indicated on the enclosed Table 1, minor impacts were identified at both locations. The concentration of MCHM at CU (0.039 mg/l), "Culvert Inside Wall" (0.180 mg/l) and CD (0.120 mg/l) is less than the drinking water advisory level (1 mg/l);[1] however, the upstream samples provide evidence of potential cross-contamination, possibly at the time of the initial emergency response efforts. The downstream sample indicates that much of the product that migrated to the culvert pipe at the time of the release has been flushed through the pipe.

The sample from the seep located along the western slope of the northern-most portion of the site (identified on Figure 1 and Table 1 as Seep-1) was collected and analyzed for MCHM and PPH to evaluate concerns that product had migrated to the northern limits of the secondary containment area. As indicated on Table 1, MCHM was not detected in this sample above the corresponding reporting limit. Therefore, the presence of MCHM previously reported by WVDEP at Seep-1 likely indicates cross-contamination due to foot traffic through the area of the release to the northern limit of the site both within and outside the secondary containment wall. It is also possible that the low levels detected in the water sample are a result of partitioning from the air. Regardless, data indicate that the seep has not been sufficiently impacted to raise

[1] The Centers for Disease Control (CDC) recommended drinking water advisory level (i.e., the drinking water concentration at, or below which, adverse health effects are not likely to occur). The CDC utilized the following assumptions in the calculations:

-The advisory for MCHM was calculated for a 10 kg (22lb) child consuming 1 L of water/day.

concerns that the northern-most portion of the site (north of Tank 393) is within the primary, or even a significant, flow path of the release.

Throughout the emergency response and interim remedial measures conducted to-date, a few sumps have been excavated to approximately 1 to 3 feet in depth below ground surface to aid in product recovery efforts from the shallow subsurface and to assist with site dewatering efforts. One such sump, Sump-1 on Figure 1, was installed near the former MCHM loading area to assist with dewatering the vicinity of the product recovery tanker truck. As illustrated on Table 1, the water sample collected from this sump indicates signs of MCHM impacts, likely from minor spills during emergency response and recovery efforts after the release from Tank 396, or earlier due to historical small spills that occurred during tanker truck loading and unloading operations. The concentration of MCHM in water from this sump is approximately the drinking water advisory limit.

While surface water sampling completed throughout most of the site as described above has revealed evidence of minor MCHM impacts with concentrations equal to or less than the drinking water advisory limit, samples collected from the Collection Trench/Pond have revealed more significant impacts. In particular, the portion of the Collection Trench/Pond which intersects and collects water flowing through a significant zone of cobble fill (refer to Figures 1 and 2) has routinely captured and contained water with MCHM concentrations ranging from 76 mg/l to 190 mg/l. The Collection Trench/Pond was installed shortly after the initial release from Tank 396 to prevent the further migration of MCHM to the Elk River, and subsequently was extended and improved per approval from WVDEP. Weekly samples have been collected of water from the Collection Trench/Pond since January 31, 2014, when flow from a drainage pipe (which produces most of the water collected in the trench) was sampled (Pipe-1 sample on Figure 1 and Table 1). Subsequent samples from the Collection Trench/Pond have been referred to as "Treatability" or "Treat" since these samples have been evaluated for numerous parameters beyond MCHM that may affect the ability of the water to be treated by wastewater treatment units. These samples are also illustrated on Table 1, and while the data does exhibit a slight downward trend over time, insufficient data exists to determine if the MCHM content in water collected by the Trench/Pond is truly diminishing. It is possible that significant rainfall events and/or heavy snow melt will continue to mobilize residual product trapped in the shallow subsurface for some time unless remedial action is undertaken in the vicinity of Tank 396 and subsequent flow paths of the release.

2.2 GROUNDWATER

Seven groundwater monitoring wells (MW-1 through MW-7) were installed immediately after the initial release from Tank 396. Each of these wells were evaluated, developed, and sampled to assess the potential impact to deeper onsite groundwater from the release at Tank No. 396. Prior to sampling the wells, an assessment was made of the condition of each well to determine if they were viable sampling points. This involved determining the depth of each well and the total amount of silt (if any) in the bottom of the well. Since each well was determined to be competent, they were all included in the sampling program. Well development, purging, and sampling was completed at each well in accordance with the January 26, 2014 Water Quality Sampling and Interim Remedial Measures Plan (as amended and supplemented).

Table 2 contains a summary of analytical data obtained from groundwater monitoring well samples. A review of Table 2 indicates that little to no impacts were observed in the deeper groundwater zone monitored by the well network. Concentrations of MCHM ranged from undetectable to 0.014 mg/l at MW-3, while concentrations of PPH ranged from undetectable to 0.022 mg/l at MW-4. These extremely low level concentrations are likely the result of cross-contamination of the drilling equipment or locations of the wells at the time of drilling, or due to partitioning from the air since the distinct odor of MCHM has been present onsite since the release occurred. Regardless, these detections do not indicate that diffuse groundwater flow from deeper groundwater zones (corresponding to the approximate river elevation) is a viable transport mechanism for MCHM to escape the Site in detectable concentrations.

3.0 COMPLETED INTERIM REMEDIAL MEASURES

Emergency response activities were largely successful in recovering free product that had not already been released to the Elk River. However, a small amount of product sheen on the Elk River adjacent to the river bank near the cobble-filled drainage way was observed shortly after a rain event when product was believed to be contained onsite. This product was contained within booms and collected for proper disposal; however, further investigation of the river bank and cobble fill area revealed that the Collection Trench/Pond needed to be lowered to intercept the low permeability clay that existed below the cobble fill (refer to Figure 2). Therefore, interim remedial measures were implemented to modify the Collection Trench/Pond to collect flow from the site downgradient of the release area and north to the northern property boundary. In addition, active water and residual product recovery through the use of collection sumps installed behind the secondary containment wall has been completed since the release. Finally, efforts to eliminate potential sources of cross-contamination upgradient of the release area and minimize the migration of clean offsite water onto the site have been implemented.

3.1 COMPLETION OF COLLECTION TRENCH/POND

As indicated above, the initial focus of interim remedial measures included lowering the portion of the Collection Trench/Pond that extended through the cobble fill area (refer to Figure 1). Prior to completing this effort, however, the southern-most portion of the Collection Trench/Pond needed to be lined and filled with stone to allow a track hoe to access the portion that cut through the cobble fill. This southern-most portion of the Collection Trench/Pond was lined with plastic, equipped with a drainage/extraction pipe for future pumping to keep the trench dewatered, and filled with stone.

Upon completion of the southern-most portion of the Collection Trench/Pond, the central portion of the trench was lowered to cut through the cobble fill and keyed into the clayey soil in order to capture flow from the entire cobble-filled zone. This portion of the trench was also lined with plastic liner and filled with stone (refer to Figure 3). At its lowest elevation point, a perforated

36-inch diameter plastic pipe was installed to serve as a long-term well point/dewatering sump. The remaining portion of the trench to the north was also lined with plastic that was keyed into the clayey soil along the slope so that water seeping from or flowing over the hillside was directed onto the plastic and eventually to the newly installed sump. In its current configuration, the Collection Trench/Pond captures surface water and shallow groundwater flow from the entire portion of the site within the estimated flow path of the release. Routine pumping has been conducted at the Collection Trench/Pond to keep it dewatered and to contain remaining MCHM-impacted water onsite. Water collected from the trench is pumped to one of the onsite storage tanks pending approval for treatment and/or offsite disposal.

3.2 WATER AND RESIDUAL PRODUCT RECOVERY WITHIN THE SECONDARY CONTAINMENT AREA

As previously discussed, various sumps have been excavated to approximately 1 to 3 feet in depth below ground surface within and adjacent to the secondary containment area. These sumps have been used to aid in product recovery efforts from the shallow subsurface and to assist with site dewatering efforts. While initial interim measures focused on dewatering the site to the extent possible at all times and diverting unimpacted upgradient water around the site, completion of the Collection Trench/Pond and difficulty demonstrating the lack of impacts to upgradient water due to suspected cross-contamination have resulted in a modified approach. As water flows through the site, residual product is dissolved and/or transported with it to the Collection Trench/Pond. Therefore, maximizing the amount of water that is permitted to flow through the site in a controlled fashion maximizes the utility of pumping water from the Collection Trench/Pond and reduces the amount of MCHM in site soils. This method is appropriate, however, only when a qualified environmental professional is onsite to monitor pumping and product recovery efforts, and only during periods of baseline or near baseline flow conditions in order to maintain control of flow through the site. At all other times, the sumps located within the secondary containment area as well as the Collection Trench/Pond are pumped to keep the site dewatered to the extent practicable.

3.3 REMOVAL OF SOIL WITH POTENTIAL CROSS-CONTAMINATION IMPACTS

As previously discussed in Section 2.0, water quality sampling data collected from points located upstream of the release area have exhibited minor levels of MCHM impacts. Discussions with site personnel and the low levels of MCHM present at these locations suggest the rapid movement of equipment and personnel during the initial spill response efforts likely resulted in cross-contamination of soils and gravel along the eastern outside wall of the secondary containment area. In addition, historical small spills may have caused the MCHM impacts identified in Sump-1 near the former MCHM loading area. To reduce the potential for ongoing impacts related to surficial soils and gravel with cross-contamination concerns, approximately 6 to 8 inches of soil was removed from the former MCHM loading area and replaced with clean gravel obtained from an offsite source. In addition, soils located adjacent to the outside of the eastern secondary containment wall were removed as part of the effort to construct a functional shallow groundwater interceptor trench as discussed below in Section 3.5.

3.4 RE-ESTABLISHING FLOW IN DOH CHANNEL WEST OF BARLOW DRIVE

A significant volume of surface water flows from the steep hillside east of the site, across Barlow Drive, and previously flowed onto the site. In order to minimize the amount of clean offsite surface water runoff entering the site that could contact MCHM impacted soil, the DOH storm water channel located west of Barlow Drive (between Barlow Drive and the abandoned railroad) was modified to re-establish flow as it was originally designed to convey water around the site. It appeared as though the channel had not been maintained in some time as a significant amount of vegetation and debris was causing the water to pond immediately east of the site. This vegetation and debris was cleared from the channel and clean fill from an approved offsite source was added to low spots within the channel in order to re-establish flow through the channel and bypass the site as originally designed.

3.5 COMPLETION OF GROUNDWATER INTERCEPTOR TRENCH

As discussed in Section 3.3, surficial soils located immediately adjacent to the outside of the eastern containment wall were removed to eliminate a possible source of cross-contamination. This same area was also excavated to the approximate depth of the secondary containment wall footer where significant shallow groundwater flow has been observed since the time of the initial release. In order to provide a mechanism through which this shallow groundwater could be intercepted before it flowed through the site, the shallow groundwater Interceptor Trench was installed (refer to Figure 1). After completing the trench, a significant volume of water was observed flowing from under the wall (through the gravel base under the wall footer). After a period of time, flow normalized, and continued pumping from the Interceptor Trench resulted in little to no flow into the Collection Trench/Pond along the river. Therefore, the Interceptor Trench provides an effective secondary means to prohibit the migration of shallow groundwater through and beyond the site when significant rainfall and/or a rise in the Elk River elevation threaten the integrity of containing onsite flow at the downgradient Collection Trench/Pond. Considering the large volume of potentially cross-contaminated soil that was removed from this area, we anticipate that future sampling may indicate that water outside the eastern secondary containment wall no longer exhibits even minor impacts and it too may be diverted around the site.

4.0 SITE CHARACTERIZATION

4.1 CONCEPTUAL SITE MODEL

The site's setting and observations noted during onsite operations completed to-date indicate groundwater exists in the shallow subsurface below the tank farm secondary containment area. The location of the release and immediately surrounding area receives significant groundwater recharge from upgradient offsite sources related to shallow groundwater/spring flow, direct rainfall, and/or stormwater. During wet periods, this shallow groundwater flows from east/southeast to west/northwest in the direction of the river and creates a mechanism for free and dissolved product to be removed from impacted soils below the secondary containment area. Seeps observed along the slope facing the Elk River at the approximate elevation of a clayey soil layer identified in soil borings completed near the release area provide additional evidence that shallow groundwater continues to mobilize residual product in subsurface soils. In addition, the presence of the seeps suggests the clay layer may be limiting downward vertical migration of shallow groundwater.

Evidence supporting this basic conceptual site model includes observations by site and emergency response personnel shortly after the release where water continued to carry product through the culvert pipe bedding until pumping near the culvert inlet and at other locations inside the secondary containment wall eliminated flow through the culvert bedding material. Finally, the area underlain by cobble fill as depicted on Figures 1 and 2 may have been placed on top of a natural drainage way/intermittent tributary to the Elk River. This drainage way/intermittent stream continues to drain the shallow groundwater table from under the secondary containment area in the near vicinity of Tank 396. As discussed below, interim remedial measures completed to-date have focused on capturing and containing flow from this cobble filled drainage way since this remains the primary source of onsite water containing significant MCHM concentrations.

4.2 GEOPHYSICAL SURVEY

A geophysical survey of the area surrounding Tank 396 will be completed as a non-invasive tool to characterize site conditions, better define the conceptual site model, help with planning of the site investigation, and potentially facilitate the evaluation and design of the most appropriate remediation alternative. The geophysical survey will include Ground Penetrating Radar (GPR) to identify the location of numerous pipes and other obstructions thought to be located in the shallow subsurface below the secondary containment area. Many of these pipes are believed to be water lines associated with the historical fire suppression system. Identifying their location will assist with field location of subsurface soil borings.

A second technology to be included in the geophysical survey will be electrical resistivity. This method measures the variable electrical resistance of subsurface materials and can help identify the location of important features such as the lateral extent of the cobble fill area depicted on Figure 1. As represented on the attached Figure 1, characterization of the site will need to include delineation of the extent of impacts extending from Tank 396 in each direction. Figure 1 includes the depiction of two transects which represent possible locations of initial borings. Nevertheless, the results of the geophysical survey will be used to assist with identifying the location of the initial borings to be completed to start the intrusive investigation phase. These locations will be identified with the report to be prepared documenting the results of the geophysical survey. It should be noted, however, that each subsequent boring location will be selected in the field based on observations from previous borings and that multiple adjustments in the actual boring locations are not only likely, but should be expected. Furthermore, these field changes, additions, and deletions to the boring program will have to occur without the notification process that is used for scheduled sampling events, etc. Rather weekly progress reports will be prepared which summarize the work accomplished during any given week.

4.3 SURFACE SOIL SAMPLING

Sampling of surface soils located immediately under the concrete floor of the secondary containment area and within the earthen floor east of the concrete portion will be completed by CEC in order to evaluate the potential near-surface flow path of the release. Samples will be collected from the upper-most 6 inches of soil using a hand-operated soil core device. Samples will be placed directly into laboratory prepared containers and immediately placed on ice for delivery to the analytical laboratory for analysis of MCHM and PPH. Each soil core collected throughout the investigation completed by CEC will also be field screened for staining, odors, and for the presence of volatile organic vapors using a Photo Ionization Detector (PID). It should be noted that a PID does not record concentrations of specific volatile organic compounds; rather, it provides a qualitative estimate of total volatile organic vapors in the soil. Further, MCHM is a semi-volatile organic compound characterized as having a licorice-like odor. To these ends, the PID will be used in conjunction with olfactory screening to delineate between MCHM-impacted and known petroleum-impacted soils in the subsurface.

4.4 SUBSURFACE SOIL INVESTIGATION

Soil borings will be completed in a systematic approach to define the zone of significantly impacted subsurface soil. Where water is observed in the anticipated shallow groundwater zone (above the clay soil identified at 5 feet below ground surface at the location of MW-1 and MW-2), the soil boring will be converted into a temporary groundwater monitoring well for potential groundwater sampling and potentiometric surface elevation measurements. Groundwater samples will be collected using the same procedures outlined in the January 26, 2014 Water Quality Sampling and Interim Remedial Measures Plan (as amended and supplemented). Soil borings will be completed using direct push drilling techniques. Borings will first be advanced in areas believed to be outside the zone of MCHM impact and progressively located closer to Tank 396 in order to establish the lateral limits of contamination. Once MCHM impacts are identified, the boring will be advanced vertically downward until field screening indicates the vertical extent of contamination has also been defined. Efforts will be made to avoid complete penetration of the clay layer so as not to provide a conduit for MCHM to enter the deeper alluvial materials along the Elk River.

Continuous core samples will be collected from select soil borings based on field screening and the representativeness of each core boring to the area being investigated. Each sample will be visually observed, field screened with a PID, and checked for the presence of suspicious staining or odors. As many as three soil samples will be collected at select borings. One subsurface soil sample will be collected at the groundwater interface, placed directly into laboratory prepared containers, and immediately placed on ice for delivery to the analytical laboratory for analysis of MCHM and PPH. An additional subsurface soil sample will be collected at the base of the fill materials. Finally, a sample will be collected if signs of contamination (PID readings, odors, or unusual soil discoloration/staining) are observed in a portion of the soil core other than the groundwater interface or base of fill sample interval. These samples will also be collected directly into laboratory prepared containers and immediately placed on ice for delivery to the analytical laboratory for analysis of MCHM and PPH.

Prior to initiating soil boring activities and between each soil boring location thereafter, the down hole drilling tools will be thoroughly decontaminated through steam-cleaning with potable water at a temporary onsite decontamination pad. Decontamination water will be managed with other wastewater collected onsite. Further, split-spoons will be decontaminated between sample intervals by washing with a non-phosphate soap solution followed by a triple water rinse. Routine equipment blank samples will be collected to verify the effectiveness of decontamination procedures on reusable tools and sampling equipment. During drilling activities, drill cuttings will be containerized in 55-gallon drums or designated roll-off boxes and stored in a secure location onsite pending offsite disposal approval. Investigation derived waste will be disposed of at a permitted offsite facility in accordance with applicable regulations.

5.0 REMEDIATION PLAN

5.1 VARIABLES AND OVERALL OBJECTIVE

As discussed in Section 1, remedial options conceptualized in the following sections are preliminary in nature and subject to change based on information obtained during completion of site characterization efforts. It is likely that a number of options will be employed to attain the remedial goals and that these options may evolve with time. In addition, it is essential to determine the ultimate disposition of wastewater generated onsite not only in order to deal with what has been collected to-date, but also due to the influence the water has on the final remedial option(s) selected. Despite these variables, it is important to note that the remedial options ultimately selected will be designed to achieve the overall objective of remediating the site to eliminate current and future threats to human health and the environment related to the MCHM release.

In addition to the remedial options described below, soils directly beneath the tanks will be observed for visual signs of contamination as the tanks are progressively removed during tank decommissioning efforts in accordance with the March 7, 2014 Tank Decommissioning Plan. Impacted near surface soils and residual product observed under tank bottoms will be removed using a vacuum truck as soon as practicable following removal of each tank. Finally, the complete remedial plan will be implemented once the tanks north of Tank 398 are removed.

5.2 REMEDIAL OPTIONS

As indicated above, much information will be determined once the tanks are removed from the release area and the site characterization can be completed. This information will be used to estimate the total volume of impacted soil and to determine the hydrogeologic model in the zone of soil impacts. The hydrogeologic model will then be used to identify the fate and transport of contamination remaining onsite.

Based on preliminary information obtained from onsite observations and from water quality sampling data, the primary flow path from Tank 396 appears to have been to the north where the culvert pipe and the cobble fill provided the transport mechanism from the secondary containment area to the Elk River. It is likely that lateral and vertical migration beyond this primary flow path also occurred. If the degree of lateral and vertical migration beyond this primary flow path is limited, excavation and offsite disposal of impacted soils may be preferred. Conversely, if the degree of lateral and vertical migration is significant, excavation of impacted soils may be limited to those soils containing residual product and severe signs of contamination. Thus, a combination of in-situ and ex-situ remedial techniques may be employed. In either scenario, groundwater remediation will likely extend beyond the period of active soil remediation.

Where most of the impacted soils are excavated and removed from the site, shorter term groundwater remediation and monitoring will be necessary until an acceptable cleanup level is achieved. If only “hotspots” within the zone of impacted soils can be removed, then longer term groundwater remediation and monitoring will be necessary. Two options for completing groundwater remediation are presented below.

5.2.1 Natural Attenuation, Collection, and Treatment

Available information on the chemical properties of MCHM, which is likely to be the driver of remedial efforts, indicates it has a relatively short half-life (~30 days or less), is soluble in water, and it migrates rapidly through soil and bedrock. Therefore, minor amounts of residual dissolved concentrations after completion of soil remediation efforts may be addressed by continuing to capture flow from the site in the Collection Trench/Pond until analytical data demonstrates an acceptable cleanup level has been achieved. Initial data can also be evaluated to determine if enhanced natural attenuation techniques would be beneficial. For example, if concentrations indicate a slower rate of decline than preferred, oxidizing agents and nutrients can be injected into the subsurface to promote a healthier environment for bio-organisms that consume the MCHM.

Evidence from ongoing treatability studies currently underway indicates bio-filtration units (similar to a POTW) are capable of completely destroying MCHM. Therefore, while options are being explored for offsite treatment, it is likely that water collected onsite until the remediation goal is achieved can ultimately be treated onsite to an acceptable level of MCHM prior to discharge. A formal proposal to construct such an onsite treatment system may follow this Plan once the treatability study is completed.

5.2.2 Active Pump and Treat

Considering the constant flow of shallow groundwater through the site, it is unlikely that active pumping will need to be implemented onsite. However, data from locations closer to the source area may indicate active pumping could speed up the removal of remaining MCHM after completion of soil remediation efforts. Water pumped from onsite wells or shallow groundwater recovery sumps will be handled in the same fashion as water collected from the Collection Trench/Pond through offsite treatment in the short term and ultimately through an onsite treatment unit. During dry weather conditions, it may also be preferable to re-inject treated water to promote the flushing of MCHM from site soils where it can be captured in the Collection Trench/Pond and collected again for destruction of the MCHM.

5.2.3 Reporting

Upon completion of the geophysical survey, CEC will prepare a report of findings including an interpretation of subsurface conditions indicated by the survey, particularly in regard to how the information is used to identify the location of the initial soil borings. As stated previously, information obtained from these borings will be used to plan the initial phase of intrusive investigation including the collection of samples for laboratory analysis. A second report will be completed to document the results of this initial phase of intrusive investigation and to lay out the location of where a final phase of investigation will be initiated. Again, each subsequent soil boring and sample location will be determined through a process of continual adjustment and refinement as each stage of the investigation is completed. A final remedial investigation report (RIR) will be completed once sufficient data has been obtained to clearly delineate the extent of impacts. The RIR will also include a description of the remedial alternatives selected to address these impacts.

TABLES

FIGURES